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The easternmost record of Macratriinae LeConte, 1862 (Coleoptera: Anthicidae), with a new species from Fiji and a genus-rank synonymy in Macratriini LeConte, 1862

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Abstract

The easternmost record of *Macratria* Newman, 1838 from Fiji is presented, and *M. fijiana* **sp. nov.** is described and illustrated. Biogeographical patterns and diversity of Pacific Macratriinae are briefly discussed. Additionally, a new genus rank synonymy in Macratriinae is proposed: *Thambospasta* Werner, 1974 **syn. nov.** of *Salimuzzamania* Abdullah, 1968. New combination is made for *Salimuzzamania howdeni* (Werner, 1974) **comb. nov.** (from *Thambospasta*).

Key words: *Macratria*, *Salimuzzamania*, *Thambospasta*, taxonomy, synonymy, new species, Melanesia, Nearctic Region, Neotropical Region

Introduction

The Macratriinae LeConte, 1862 is cosmopolitan subfamily of Anthicidae Latreille, 1819 (Werner & Chandler 1995; Chandler 2002; 2010; Telnov 2011). Macratriinae is currently represented by two tribes, the monotypic fossil Camelomorphini Kirejtshuk, Azar et Telnov, 2008 in Kirejtshuk & Azar, 2008 (for the monotypic genus *Camelomorpha* Kirejtshuk, Azar et Telnov, 2008 in Kirejtshuk & Azar, 2008 from Lebanese amber), and Macratriini LeConte, 1862 (for the extant cosmopolitan *Macratria* Newman, 1838, the Central American *Salimuzzamania* Abdullah, 1968 and the Southern U.S. *Thambospasta* Werner, 1974, of which two latter synonymized in the present paper) (Chandler 2010 in part; Telnov 2012a). Ninety-nine *Macratria* species have hitherto been recorded from Melanesia, with the easternmost record in the region from the Solomon Islands (Telnov 2011; 2012b; 2017).

Melanesia is a vast area in south-western Pacific, from New Guinea in the West to Fiji in the East. The name for this subregion of the Pacific, first introduced by Dumont d'Urville (1832) and still widely used, does not in fact accurately reflect the prehistory of human populations in the Pacific (Pawley & Green 1973; Green 1991; Tcherkézoff 2009).

While identifying two historical *Macratria* specimens from Viti Levu, Fiji's main island, in the Coleoptera collection of the Natural History Museum, London, the surprising discovery was made of the easternmost record of this genus. The new species is described and illustrated here as *Macratria fijiana* **sp. nov.** The biogeography and distribution of Macratriinae is briefly discussed.

Additionally, a new genus-rank synonymy is introduced for Central American and southern Nearctic Macratriini.

Material and methods

For proper examination, the beetles were relaxed in water. Abdomens were detached and cleared for several hours

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10% KOH at room temperature. Genitalia were mounted on microscope slides and fixed in Dimethyl hydantoin formaldehyde (DMHF) to make permanent mounts. For morphological studies, a Leica S6D binocular stereomicroscope was used. Photographs of the adults were taken with Canon EOS 77D camera and Canon MP-E 65 mm lens, of genitalia and terminal abdominal segments—with Sony Cyber-shot camera mounted to Meiji optical microscope.

Data from all specimen labels are reproduced verbatim, without additions. If not stated, all labels are printed. The authors' supplemental or explanatory comments are placed in square brackets. Labels (if there are multiple labels on a specimen) are separated by a slash. The two studied specimens of the new species are provided with a black-framed label on red paper 'HOLOTYPUS' and 'PARATYPUS', respectively.

Acronyms of the material stores:

BMNH	Natural History Museum (formerly British Museum, Natural History), London, United Kingdom;
CNCI	Canadian National Collection of Insects, Ottawa, Canada;
DTC	Collection Dmitry Telnov, Rīga, Latvia.

Results

New description

***Macratria fijiana* sp. nov.**
(Figs 1-12)
http://zoobank.org/EF47C41D-A1D3-456A-92C7-51C3B795CB03

Material. Holotype ♂ BMNH: 14. 2. [19]46. [handwritten] R. A. Lever [printed] Naduruloulou C. [handwritten] Fiji [printed] 1928 [handwritten] / Pres. by Comm Inst Ent B.M. 1981-315. [antennomeres 6–11 of the right antenna and right metatibia- and tarsus are missing].

Paratype 1♀ [BMNH]: R. A. LEVER [printed] C [handwritten] FIJI [printed] 1228 Karova 23.8.[19]41 [handwritten] / Pres. by Comm Inst Ent B.M. 1981-315. [left elytron is missing].

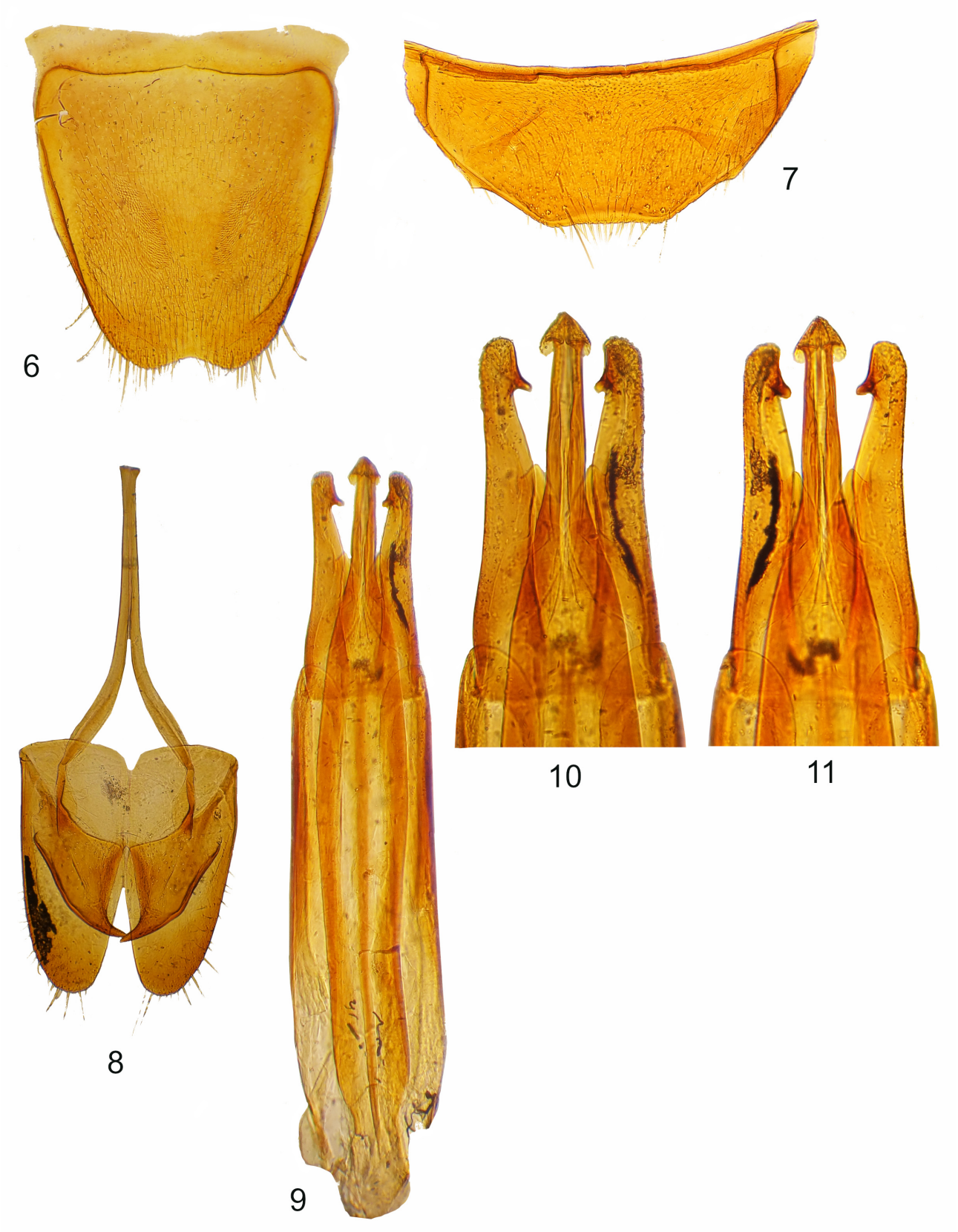
Description. Measurements. Holotype, total length 3.75 mm. Head length without cranial neck 0.7 mm, width across compound eyes 0.61 mm. Pronotal length 0.94 mm, maximum width 0.62 mm. Elytral length 2.1 mm, maximum width 0.95 mm. Paratype is 3.7 mm long.

Dorsum brown, pronotum darker, head reddish-brown. Mouthparts, antennae and legs yellowish-brown. Venter brown, reddish-brown on head.

Head glossy dorsally, with large, moderately prominent, compound eyes. Interfacetal setae long and dense. Frontoclypeal suture or impression not observed. Posterolateral angles rounded, head base subtruncate, with distinct moderately broad median notch. Punctures on frons and vertex gentle, intervening spaces glossy, same length to 3x as large as punctures. Setae golden, moderately long, suberect. Several much longer, erect tactile setae around compound eyes and on vertex. Antenna slender, extending slightly over base of elytra. Second antennomere nearly as long as third antennomere. Antennomeres 4–8 long and slender, 9–10 somewhat thickened and slightly widened distally. Terminal antennomere strongly elongate, slightly asymmetrical, obtusely pointed apically, in male distinctly longer than, in female about as long as combined length of antennomeres 9–10. Terminal maxillary palpomere cultriform. Pronotum glossy and flattened dorsally, broadly rounded on anterior margin, gradually constricted laterally towards slightly narrower base. Punctures on pronotal disc rather large, in part coarse on basal one third, intervening spaces glossy, as large as to (generally) narrower than punctures. Setae yellowish, long and dense, appressed. On pronotal disc and along its lateral margins with several much longer, erect tactile setae. Scutellar shield small, truncate apically. Elytra subopaque, flattened dorsally, elongate and slender. Punctures on elytral disc circular, rather large and dense, arranged into 5–6 partially confused longitudinal rows on each elytron. Punctures becoming flat on postbasal half of elytra. Intervening spaces generally as large as punctures. Setae whitish to yellowish, long and dense, appressed. Longer erect tactile setae scattered over elytral disc. Legs with clavate femora. Tibiae covered by long and dense setae. Terminal tibial spurs paired, apically pointed. Male basal metatarsomere longer than

FIGURES 1–3. *Macratria fijiana* **sp. nov.**, holotype ♂ (BMNH). 1—general view, dorsally, 2—head, dorsal view, 3—pronotum dorsal view. Not to scale.

FIGURES 4–5. *Macratria fijiana* **sp. nov.**, paratype ♀ (BMNH). 4—general view, dorsally, 5—forebody, laterodorsal view. Not to scale.



FIGURES 6–11. *Macratria fijiana* **sp. nov.**, holotype ♂. 6—tergite VII, dorsal view, 7—morphological sternite VII, ventral view, 8—morphological sternites VIII and IX, tergite VIII (on a background), ventral view; 9—aedeagus; 10–11 apical portion of aedeagus, ventral and dorsal view. Not to scale.

combined length of remaining tarsomeres, in female—same long as combined length of remaining tarsomeres. Male tergite VII broadly emarginate at posterior margin (Fig. 6), sternite VII subtruncate and irregularly microtuberculate at posterior margin (Fig. 7). Female tergite VII and sternite VII broadly rounded at posterior margin. Sternites VIII–IX and tergite VIII as in Fig. 8. Aedeagus with parameres dentate subapically on inner margin (Figs 9–11). Median lobe longer than parameres, tripartite apically, with triangular "cap" covering the apex (Figs 10–11).

Sexual dimorphism. Female terminal antennomere and basal metatarsomere significantly less elongate than in male, terminalia rounded at posterior margin (not as in male).

Differential diagnosis. *Macratria fijiana* **sp. nov.** is readily differentiated from all congeners by the shape of the male terminalia and genitalia, particularly the aedeagus.

Etymology. Toponymic. Named after Fiji, the country of origin.

Distribution. Only known from Viti Levu Island, Central Division, Fiji Archipelago (Fig. 12).

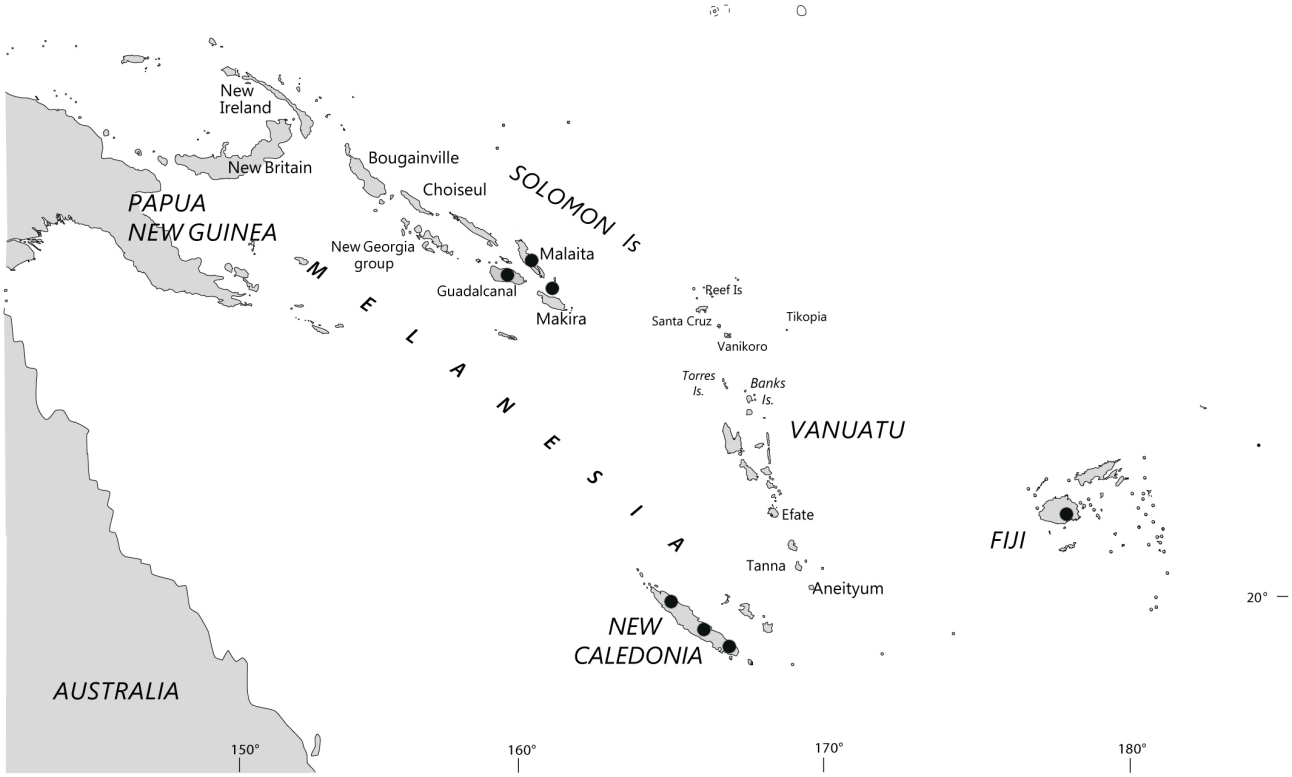


FIGURE 12. Map of Melanesia with schematic distribution of *Macratria fijiana* **sp. nov.** (on Fiji) and nearest *Macratria* records on New Caledonia and the Solomon Islands.

Note. Lever, R. J. A. W., was an applied entomologist based in Fiji and published on entomology and biogeography of Fiji and New Caledonia (Evenhuis 2008). The *Macratria fijiana* **sp. nov.** specimens came to the BMNH after the closure of the Commonwealth Institute Collection. The codes "1928" and "1228" on the original labels of holotype and paratype probably refer to sample numbers / crops / fields or land near fields, but no records for what exactly they mean are available (M. Barclay, personal communication).

New genus-rank synonymy

Material examined

Salimuzzamania uniformis (Champion, 1890), holotype ♀ BMNH (Fig. 13; habitus image published for the first time): S. Geronimo, Guatemala. Champion. [printed] / B.C.A. Coll.IV.2. Eurygenius [printed] uniformis [handwritten] Champ. [printed] / Sp. figured. [printed] / Eurygenius uniformis ♂ Ch. [handwritten; sic! this specimen is a female] / 527.♀. [handwritten] / Type H.T. [printed, label circular, red frame] [current name of the type locality is San Jerónimo].

Thambospasta howdeni Werner, 1974, holotype ♂ CNCI: Big Bend N.P., TEX. 1850' Boquillas May [printed] 23 [handwritten] 1959. Light Howden & Becker [printed] / HOLOTYPE ♂ Thambospasta howdeni Werner [handwritten] / HOLOTYPE [printed, label red] / HOLOTYPE CNC No. [printed] 15202 [handwritten] [label red] / CNC 943163 [printed, blue frame].

Abdullah (1968: 188) erected *Salimuzzamania* from a female holotype of *Eurygenius uniformis* Champion, 1890 (Fig. 13) from Guatemala and originally designated it as the type species of the genus. *Salimuzzamania* was originally placed by Abdullah (1968) in Eurygeniinae LeConte, 1862 in the family Anthicidae, and remained monotypic. This species also reported from Costa Rica (Lawrence 2001) but without proper locality information.

Werner (1974: 148) erected *Thambospasta* for a series of *T. howdeni* Werner, 1974 male and female specimens from Texas, U.S.A., that was originally designated as the type species of the genus. *Thambospasta* was originally placed in Meloidae "possibly assignable to the subfamily Eleticinae" (Werner 1974) and remained monotypic.

Chandler (2002: 551) placed the genus *Thambospasta* in the subfamily Eurygeniinae. Telnov (2009, Table 1) compared the morphology of the tarsal claws in Eurygeniinae, Steropinae Jacquelin du Val, 1863 and Macratriinae, and consequently listed *Salimuzzamania* in Eurygeniinae. Later, Chandler (2010: 730) placed both *Salimuzzamania* and *Thambospasta* within Macratriinae and Telnov (2011; 2012a) consequently followed this system.

Some critical features of *Salimuzzamania* are as follows (modified from Werner (1974)): head is well-differentiated from narrow cranial neck; compound eye broadly and shallowly excavate at anterior margin; vague impression present at place of frontoclypeal suture; outer margin of mandible concave in basal part; mandible apex scooped, mandible unidentate; terminal maxillary palpomere narrowly securiform; procoxal cavities open externally, closed internally; mesanepisterna narrowly meeting in front of mesoventrite, line of fusion poorly indicated; mesoventrite very broadly triangular, obtuse-angled to near-rounded apically; sternite III excavated and margined to receive the metacoxae; metathoracic wing with vein $2A_2$ present, connected by a crossvein with 1A; base of vein $2A_2$ well-developed, forming a closed cell; vein $3A_1$ connected to base of vein 3A; crossvein r present, radial cell is closed; tarsal claws appendiculate, each with an obtuse basal tooth; at least pro- and mesotarsal claws additionally each with a pointed, acute tooth; tibial terminal spurs microspinose; female gonostyli uni-segmented; female sternite VIII anteriorly with a long apodeme.

The two genera *Salimuzzamania* and *Thambospasta* are morphologically identical, and the new synonymy proposed here is based on study of the type species of both genera.

Salimuzzamania Abdullah, 1968 = *Thambospasta* Werner, 1974 **syn. nov.**

Consequently, the new combination is made for *Salimuzzamania howdeni* (Werner, 1974) **comb. nov.**

Discussion

As of Telnov (2011), the easternmost previously known records of Macratriinae and *Macratria* in Melanesia were from Uki (Uki Ni Massi) Island North of San Cristobal (about 161°42–44'E), eastern Solomon Islands, from where *M. nguzunguzu* Telnov, 2011 was recently described, and from Grande Terre of New Caledonia, where *M. caledonica* Fauvel, 1906, *M. lipsbergi* Telnov, 2019, *M. manfredjaechi* Telnov, 2019 and *M. rectipilis* Telnov, 2012 occur. Of New Caledonian species, *M. caledonica* (about 166°40'E) and *M. manfredjaechi* (166°40'E) are already recorded from the SE tip of the island, but for *M. lipsbergi* only one record from the type locality in northern Grande Terre was known (Telnov 2019), until the following recent material from central part of the island became accessible: New Caledonia, Pr. Sud 3 km NW Sarramea S 21°37', E 165°50' 23.–30.12.2011 250–550 m a. Kudrna Jr. lgt. (2 specimens, DTC). In the southern Pacific, the easternmost record of Macratriinae known is for *M. exilis* Pascoe, 1877 from the eastern peninsula of the Northern Island, nearly 178°0'E (Werner & Chandler 1995).

The Fijian record of *Macratria fijiana* **sp. nov.** from Naduruloulou is from about 178°31'E, while the record from Karova (= Karovou)—from about 178°20'E, making them the easternmost known records of the Macratriinae and *Macratria*. Uki Island of the Solomons (*Macratria nguzunguzu* type locality) is located about 2000 km WNW and S Grande Terre (locality for *M. caledonica* and *M. manfredjaechi*) is about 1315 km SW of the localities for

Macratria fijiana **sp. nov.** The new species is not closely related morphologically to any of the currently known New Caledonian *Macratria* nor to the Solomon Islands species. No Macratriinae records are presently known from Vanuatu, an archipelago between Fiji and the Solomon Islands / New Caledonia. The route by which *Macratria* colonised Fiji therefore remains obscure.

The two species, *Salimuzzamania uniformis* and *S. howdeni* are both considered good species, but the male is unknown for *S. uniformis* and so comparison of genital characters is not yet possible. Head base is rounded and slightly notched medially in *S. howdeni* but slightly concave medially, nearly subtruncate in *S. uniformis* (Fig. 13), punctures on dorsal forebody are comparatively smaller and less coarse in *S. uniformis* compared to those in *S. howdeni*, pronotum comparatively shorter, lateral margins of pronotum not emarginate in basal half in *S. howdeni* but somewhat broadly emarginate in *S. uniformis* (Fig. 13).

FIGURE 13. *Salimuzzamania uniformis* (Champion, 1890), holotype ♀ (BMNH), general view, dorsally.

The type localities of the two species, in Guatemala and southern Texas, are separated by more than 2200 km, but this is not considered peculiar. About a third of the Anthicidae *sensu stricto* genera in the Americas have wide distributions. Of a total of 47 American anthicid genera, 14 are found in both Nearctic and Neotropical regions (*incertae sedis* genera as of Lawrence *et al*. (2010) and Telnov & Degiovanni (2021), as well as *Hirticomus* Pic, 1894, *Omonadus* Mulsant et Rey, 1866, and *Stricticomus* Pic, 1894 represented in the Americas only by non-autochthonous species are not considered; *Salimuzzamania* and *Thambospasta* are here considered single genus). This is true for both large, species-rich genera (for instance, *Macratria* Newman, 1838, *Notoxus* Geoffroy, 1762, *Sapintus* Casey, 1895, *Tomoderus* LaFerté-Sénectère, 1849, all with cosmopolitan distribution) as well as for less diverse and the Americas-restricted groups (for instance, *Bactrocerus* LeConte, 1866, *Eurygenius* LaFerté-Sénectère, 1849, *Rilettius* Abdullah, 1964, *Squamanotoxus* Chandler, 2001).

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